[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 97-SW-60-AD]

Airworthiness Directives; Sikorsky Aircraft-Manufactured Model CH-54A Helicopters

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This document proposes the adoption of a new airworthiness directive (AD) that is applicable to Sikorsky Aircraft-manufactured Model CH-54A helicopters. This proposal would require an initial and recurring inspections and rework or replacement, if necessary, of the second stage lower planetary plate (plate). This proposal is prompted by cracked plates that have been found during overhaul and inspections. The actions specified by the proposed AD are intended to prevent failure of the plate due to fatigue cracking, which could result in failure of the main gearbox, failure of the drive system, and subsequent loss of control of the helicopter.

DATES: Comments must be received on or before April 13, 1998.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Office of the Regional Counsel, Southwest Region, Attention: Rules Docket No. 97-SW-60-AD, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137. Comments may be inspected at this location between 9:00 a.m. and 3:00 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Mr. Uday Garadi, Aerospace Engineer, FAA, Rotorcraft Directorate, Rotorcraft Certification Office, Fort Worth, Texas 76193-0170, telephone (817) 222-5157, fax (817) 222-5959.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified above. All communications received on or before the closing date for comments, specified above, will be considered before taking action on the proposed rule. The proposals contained in this notice may be changed in light of the comments received.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the proposed rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report summarizing each FAA-public contact concerned with the substance of this proposal will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 97-SW-60-AD." The postcard will be date stamped and returned to the commenter.

Availability of NPRMs

Any person may obtain a copy of this NPRM by submitting a request to the FAA, Office of the Regional Counsel, Southwest Region, Attention: Rules Docket No. 97-SW-60-AD, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

Discussion

This notice proposes the adoption of a new AD that is applicable to Sikorsky-manufactured Model CH-54A helicopters. This proposal would require an initial and recurring inspections and rework of the plate or replacement, if necessary. It is believed that cracks on the plate initiate at and radiate from the lightening holes in the plate web due to fatigue. This condition, if not corrected, could result in failure of the main gearbox, failure of the drive system, and subsequent loss of control of the helicopter.

Since an unsafe condition has been identified that is likely to exist or develop on other Sikorsky-manufactured Model CH-54A helicopters of the same type design, the proposed AD would require an initial and recurring inspections and replacement, if necessary, of the plate.

The FAA estimates that 9 helicopters of U.S. registry would be affected by this proposed AD, that it would take approximately 8 work hours per helicopter to accomplish the proposed inspections and 56 hours to remove and replace the plate, and that the average labor rate is $60 per work hour. Required parts would cost approximately $8,000 per helicopter. Based on these figures, the total cost impact of the proposed AD on U.S. operators is estimated to be $106,560; $4,320 to accomplish the inspections and rework, and $102,240 to replace the plate in the main gearbox assembly in all 9 helicopters, if necessary.

The regulations proposed herein would not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

For the reasons discussed above, I certify that this proposed regulation (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A copy of the draft regulatory evaluation prepared for this action is contained in the Rules Docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption "ADDRESSES."

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

The Proposed Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by adding a new airworthiness directive to read as follows:

COLUMBIA HELICOPTER; HEAVY LIFT; SILVER BAY LOGGING: Docket No. 97-SW-60-AD.

Applicability: CH-54A helicopters with lower planetary plate, part number (P/N) 6435-20229-102, installed, certificated in any category.

NOTE 1: This AD applies to each helicopter identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For helicopters that have been modified,

altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must use the authority provided in paragraph (d) to request approval from the FAA. This approval may address either no action, if the current configuration eliminates the unsafe condition, or different actions necessary to address the unsafe condition described in this AD. Such a request should include an assessment of the effect of the changed configuration on the unsafe condition addressed by this AD. In no case does the presence of any modification, alteration, or repair remove any helicopter from the applicability of this AD.

Compliance: Required as indicated, unless accomplished previously.

To prevent failure of the second stage lower planetary plate (plate), P/N 6435-20229-102, due to fatigue cracking, which could lead to failure of the main gearbox, failure of the drive system, and subsequent loss of control of the helicopter, accomplish the following:

(a) On or before accumulating 1,300 hours time-in-service (TIS) conduct a fluorescent magnetic particle inspection of the plate, P/N 6435-20229-102, in the circumferential and longitudinal directions using the wet continuous method. Pay particular attention to the area around the 9 lightening holes.

(1) If any crack is discovered, replace the plate with an airworthy plate.

(2) If no crack is discovered, rework the plate as follows:

(i) Locate the center of each 1.750 inch-diameter lightning hole and machine holes 0.015 to 0.020 oversize on a side (0.030 to 0.040 diameter oversize). Machined surface roughness must not exceed 63 microinches AA rating (see Figure 1).

(ii) Radius each hole 0.030 to 0.050 inches on each edge as shown in Figure 1.

(iii) Mask the top and bottom surfaces of the plate to expose 3.20 inch minimum width circumferential band as shown in Figure 1.

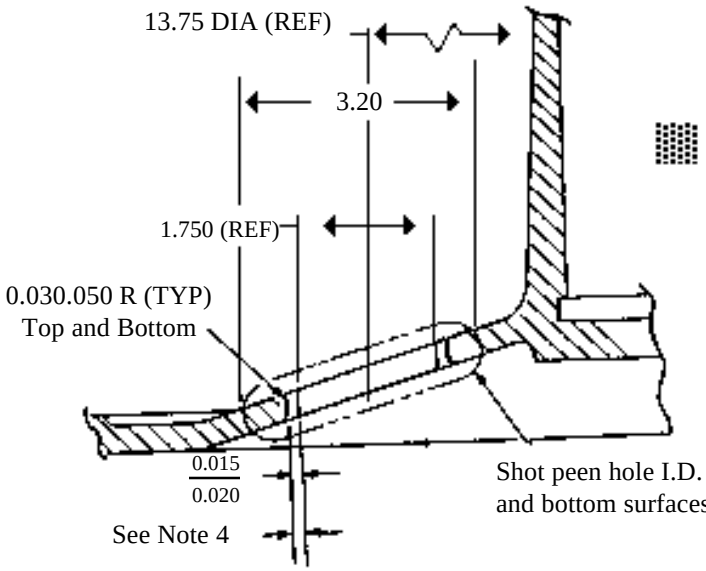
(iv) Vapor blast or bead exposed surfaces to remove protective finish. Use 220 aluminum oxide grit at a pressure of 80 to 90 pounds per square inch.

(v) Shot peen exposed surfaces and inside and edges of lightening holes to 0.008 - 0.012A intensity. Use cast steel shot, size 170; two hundred percent coverage is required. Use the tracer dye inspection method to ensure the required coverage. Also, visually inspect the shot peened surfaces for correct shot peen coverage. Inspect the intensity of the shot by performing an Almen strip height measurement.

(vi) Clean reworked surfaces using acetone. Touch up the reworked areas using Presto Black or an equivalent touchup solution. Ensure that the touchup solution is at a temperature between 70° F to 120° F during use. Keep the reworked surfaces wet with touchup solution for three minutes to obtain a uniform dark color. Rinse and dry the reworked areas.

(vii) Polish the reworked surfaces with a grade 00 or finer steel wool and polish with a soft cloth. Coat the reworked surfaces with preservative oil.

(viii) Identify the reworked plate by adding "TS-107" after the part number using a low-stress depth-controlled impression-stamp with a full fillet depth of not more than 0.003 inch (see Figure 1).



Notes:

1. Mask top and bottom areas to protect from liquid air-grit and shot peen.

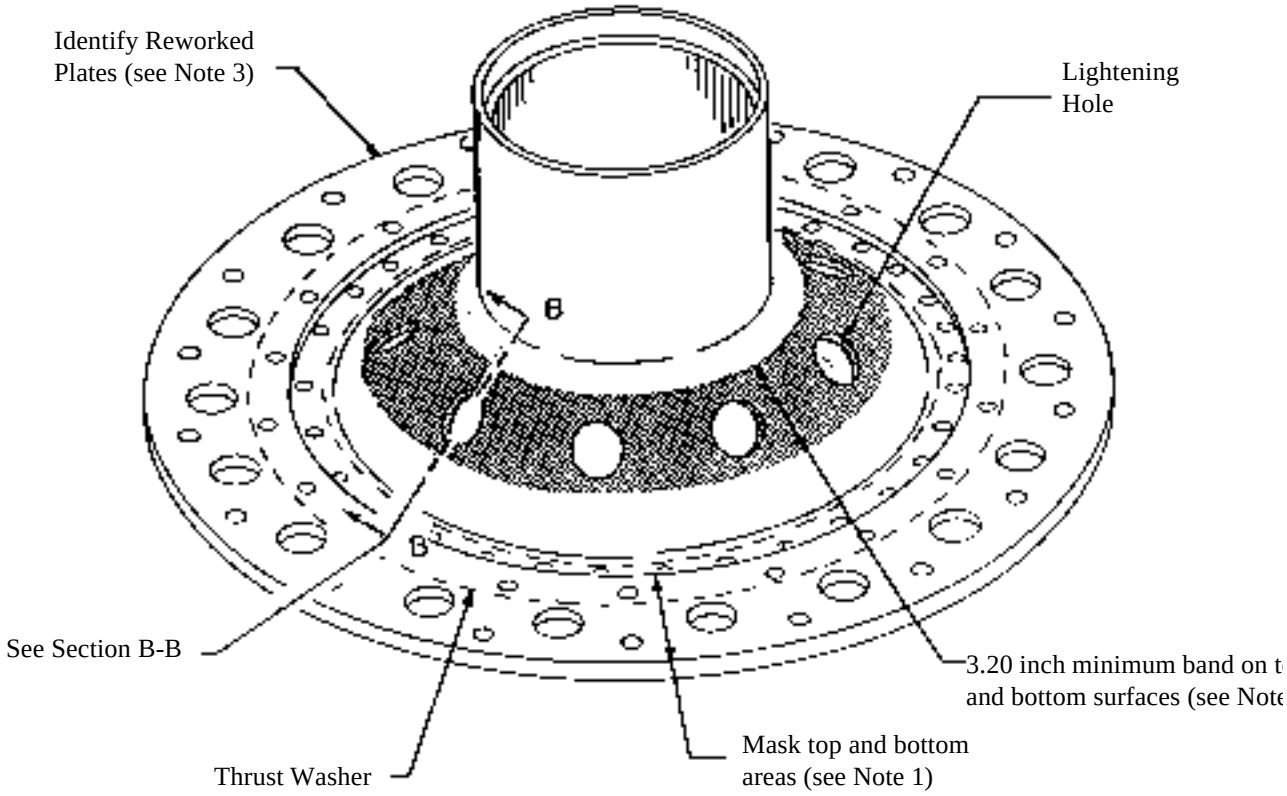
2. Shaded area to be liquid air-grit blasted and shot peened includes plate top and bottom surfaces and I.D. of all lightening holes. Feather shot peened surface edges.

3. Use low-stress depth controlled impression-stamp with full fillet depth of no more than 0.003 inch.

4. Reworked machined surface roughness shall not exceed 63 microinches AA rating.

Section B-B

(Typical Nine Places)

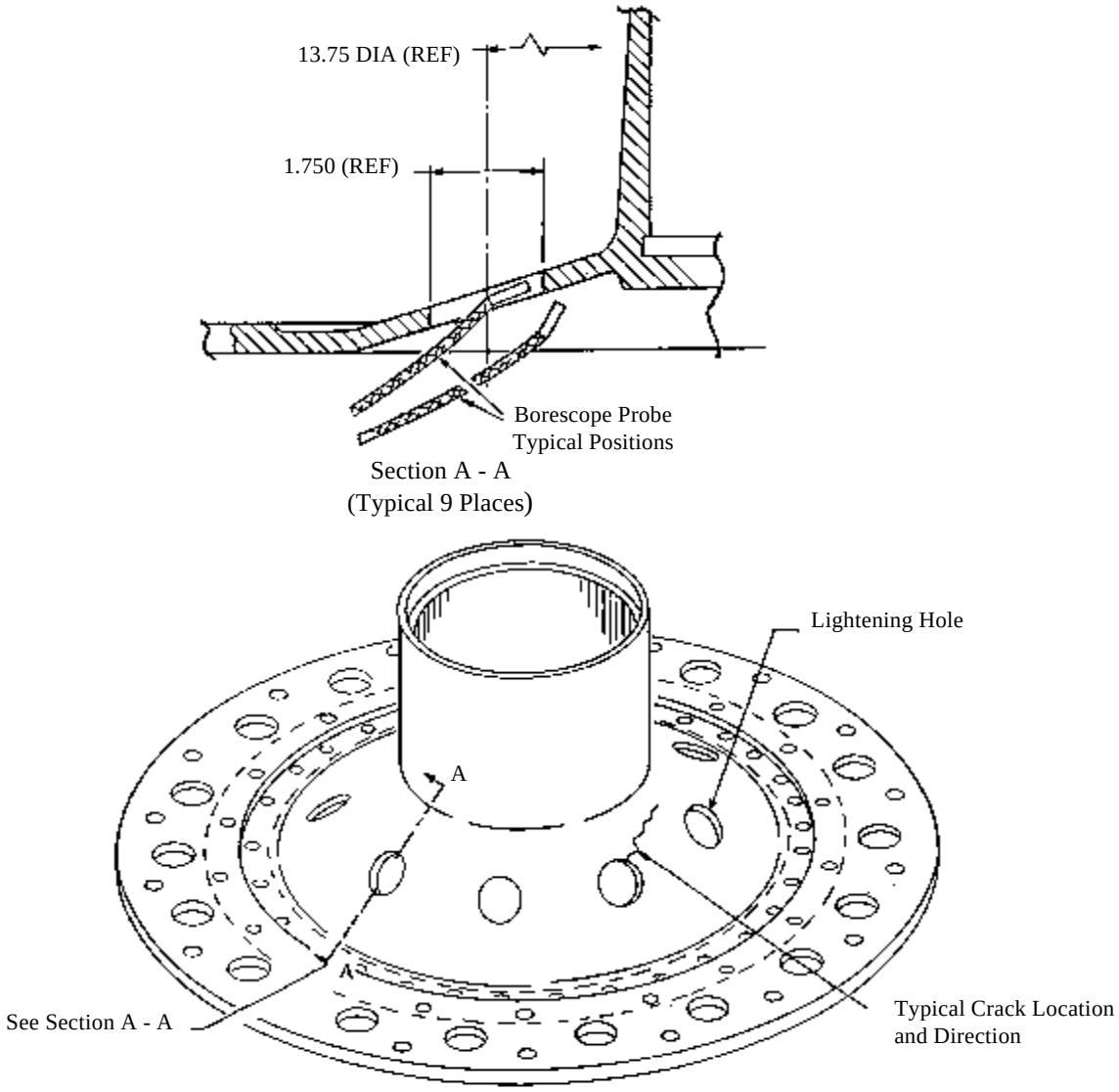


Rework of Second Stage
Lower Planetary Plate (6435-20229-102)
Figure 1

(b) For any plate, P/N 6435-20229-102, that has been reworked and identified with "TS-107," on or before the accumulation of 1,500 hours TIS and thereafter at intervals not to exceed 70 hours TIS, accomplish the following:

(1) Inspect the plate for a crack in the area around all nine lightening holes using a Borescope or equivalent inspection method (see Figure 2).

(2) If a crack is found, replace the plate with an airworthy plate.



Borescope Inspection of
Second Stage Lower Planetary Plate
Figure 2

(c) On or before the accumulation of 2,600 hours TIS, remove from service plates, P/N 6435-20229-102, reidentified as P/N 6435-20229-102-TS-107 after rework. This AD revises the airworthiness limitation section of the maintenance manual by establishing

a retirement life of 2,600 hours TIS for the main gearbox assembly second stage lower planetary plate, P/N 6435-20229-102, re-identified as P/N 6435-20229-102-TS-107 after rework.

NOTE 2: Erickson Air-Crane Company Service Bulletin No. 64B35-7C, dated November 8, 1995 pertains to the subject of this AD.

(d) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Rotorcraft Certification Office, FAA, Rotorcraft Directorate. Operators shall submit their requests through an FAA Principal Maintenance Inspector, who may concur or comment and then send it to the Manager, Rotorcraft Certification Office.

NOTE 3: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Rotorcraft Certification Office.

(e) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the helicopter to a location where the requirements of this AD can be accomplished.

Issued in Fort Worth, Texas, on February 3, 1998.

original signed by

Eric Bries
Acting Manager, Rotorcraft Directorate,
Aircraft Certification Service.